

4. (Amended) The method of claim 1 wherein said modifying results in utilization of a different extender unit; and/or

wherein said modifying results in utilization of a different starter unit; and/or

wherein said modification results in a polyketide of a different chain length.

5. (Amended) A nucleic acid comprising a nucleotide sequence encoding a modified PKS obtainable by the method of claim 1.

Please replace present claim 11 with the following claim 11:

11. (Amended) A method to construct a library of colonies containing expression vectors for a multiplicity of different polyketide synthases which method comprises transforming recombinant host cells with a mixture of expression vectors containing the nucleotide sequences obtained by the method of claim 1; and

separating the transformed cells into individual colonies, and culturing the colonies.

Please replace present claim 15 with the following claim 15:

15. (Amended) A method to produce a library of modular PKS proteins which method comprises culturing the multiplicity of cell colonies or the library of colonies of claim 13 under conditions wherein said expression vectors effect production of said modular PKS proteins.

Please replace present claim 19 with the following claim 19:

19. (Amended) A method to produce a combinatorial library of polyketides which method comprises culturing the cell colonies or library of colonies of claim 17 under conditions wherein polyketides whose synthesis is effected by said different PKS proteins are produced.

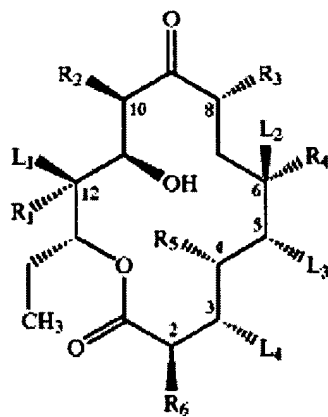
Please replace present claim 23 with the following claim 23:

23. (Amended) A method to identify a successful candidate polyketide which binds to or reacts with a target moiety, which method comprises screening the library of claim 20 by

contacting each polyketide in said library with the target moiety under conditions wherein a successful candidate would form a complex with said target moiety, and
 detecting any complex formed, thus identifying a polyketide of the library as the successful candidate.

Please add new claims 29 through 58 listed below.

29. (new) A compound of the formula:



wherein R₁, R₂, R₃, R₄, R₅, and R₆ are independently selected from Q wherein Q is selected from the group consisting of (a) --H, (b) --Me, (c) --Et, and (d) --OH;

L₁ and L₂ are independently --H or --OH;

L₃ is D-desosamine or --OH; and

L₄ is L-mycarose, L-cladinose or --OH

with the proviso that when R₁ -R₅ are --Me, R₆ is other than --H or --Me.

30. (new) The compound of claim 29 wherein Q is selected from the group consisting of (a), (b), and (c) and L₁, L₂, L₃ and L₄ are as defined therein.

31. (new) The compound of claim 29 wherein Q is selected from the group consisting of (a), (b), and (d) and L₁, L₂, L₃ and L₄ are as defined therein.

32. (new) The compound of claim 29 wherein Q is selected from the group consisting of (a), (c), and (d) and L₁, L₂, L₃ and L₄ are as defined therein.

33. (new) The compound of claim 29 wherein Q is selected from the group consisting of (b), (c), and (d) and L₁, L₂, L₃ and L₄ are as defined therein.

34. (new) The compound of claim 29 wherein Q is selected from the group consisting of (a) and (b) and L₁, L₂, L₃ and L₄ are as defined therein.

35. (new) The compound of claim 29 wherein Q is selected from the group consisting of (a) and (c) and L₁, L₂, L₃ and L₄ are as defined therein.

36. (new) The compound of claim 29 wherein Q is selected from the group consisting of (a) and (d) and L₁, L₂, L₃ and L₄ are as defined therein.

37. (new) The compound of claim 29 wherein Q is selected from the group consisting of (b) and (c) and L₁, L₂, L₃ and L₄ are as defined therein.

38. (new) The compound of claim 29 wherein Q is selected from the group consisting of (b) and (d) and L₁, L₂, L₃ and L₄ are as defined therein.

39. (new) The compound of claim 29 wherein Q is selected from the group consisting of (c) and (d) and L₁, L₂, L₃ and L₄ are as defined therein.

40. (new) The compound of claim 29 wherein Q is (a) and L₁, L₂, L₃ and L₄ are as defined therein.

41. (new) The compound of claim 29 wherein Q is (c) and L₁, L₂, L₃ and L₄ are as defined therein.

42. (new) The compound of claim 29 wherein Q is (d) and L₁, L₂, L₃ and L₄ are as defined therein.

43. (new) The compound of claim 29 wherein
(a) R₆ and R₁ are --H and R₂, R₃, R₄ and R₅ are --Me,

- (b) R₅ and R₁ are --H and R₂, R₃, R₄ and R₆ are --Me,
- (c) R₄ and R₁ are --H and R₂, R₃, R₅ and R₆ are --Me,
- (d) R₃ and R₁ are --H and R₂, R₄, R₅ and R₆ are --Me,
- (e) R₂ and R₁ are --H and R₃, R₄, R₅ and R₆ are --Me,
- (f) R₆ and R₂ are --H and R₁, R₃, R₄ and R₅ are --Me,
- (g) R₅ and R₂ are --H and R₁, R₃, R₄ and R₆ are --Me,
- (h) R₄ and R₂ are --H and R₁, R₃, R₅ and R₆ are --Me,
- (i) R₃ and R₂ are --H and R₁, R₄, R₅ and R₆ are --Me,
- (j) R₆ and R₃ are --H and R₁, R₂, R₄ and R₅ are --Me,
- (k) R₅ and R₃ are --H and R₁, R₂, R₄ and R₆ are --Me,
- (l) R₄ and R₃ are --H and R₁, R₂, R₅ and R₆ are --Me,
- (m) R₆ and R₄ are --H and R₁, R₂, R₃ and R₅ are --Me,
- (n) R₅ and R₄ are --H and R₁, R₂, R₃ and R₆ are --Me,
- (o) R₆ and R₅ are --H and R₁, R₂, R₃ and R₄ are --Me, and
L₁, L₂, L₃ and L₄ are as defined therein.

44. (new) The compound of claim 43 wherein (a)-(o) are as defined therein, L₁ and L₂ are --OH, L₃ is D-desosamine and L₄ is L-cladinose.

45. (new) The compound of claim 29 wherein

- (a) R₆, R₂ and R₁ are --H and R₃, R₄ and R₅ are --Me,
- (b) R₅, R₂ and R₁ are --H and R₃, R₄ and R₆ are --Me,
- (c) R₄, R₂ and R₁ are --H and R₃, R₅ and R₆ are --Me,
- (d) R₃, R₂ and R₁ are --H and R₄, R₅ and R₆ are --Me,
- (e) R₆, R₃ and R₁ are --H and R₂, R₄ and R₅ are --Me,
- (f) R₅, R₃ and R₁ are --H and R₂, R₄ and R₆ are --Me,
- (g) R₄, R₃ and R₁ are --H and R₂, R₅ and R₆ are --Me,
- (h) R₆, R₄ and R₁ are --H and R₂, R₃ and R₅ are --Me,
- (i) R₅, R₄ and R₁ are --H and R₂, R₃ and R₆ are --Me,
- (j) R₆, R₅ and R₁ are --H and R₂, R₃ and R₄ are --Me,
- (k) R₆, R₃ and R₂ are --H and R₁, R₄ and R₅ are --Me,

- (l) R₅, R₃ and R₂ are --H and R₁, R₄ and R₆ are --Me,
- (m) R₄, R₃ and R₂ are --H and R₁, R₅ and R₆ are --Me,
- (n) R₆, R₄ and R₂ are --H and R₁, R₃ and R₅ are --Me,
- (o) R₅, R₄ and R₂ are --H and R₁, R₃ and R₆ are --Me,
- (p) R₆, R₅ and R₂ are --H and R₁, R₃ and R₄ are --Me,
- (q) R₆, R₄ and R₃ are --H and R₁, R₂ and R₅ are --Me,
- (r) R₅, R₄ and R₃ are --H and R₁, R₂ and R₆ are --Me,
- (s) R₆, R₅ and R₃ are --H and R₁, R₂ and R₄ are --Me, or
- (t) R₆, R₅ and R₄ are --H and R₁, R₂ and R₃ are --Me, and
L₁, L₂, L₃ and L₄ are as defined therein.

46. (new) The compound of claim 45 wherein (a)-(t) are as defined therein, L₁ and L₂ are --OH, L₃ is D-desosamine and L₄ is L-cladinose.

47. (new) The compound of claim 29 wherein
- (a) R₆, R₃, R₂ and R₁ are --H and R₅, and R₄ are --Me,
 - (b) R₅, R₃, R₂ and R₁ are --H and R₆, and R₄ are --Me,
 - (c) R₄, R₃, R₂ and R₁ are --H and R₅, and R₆ are --Me,
 - (d) R₆, R₄, R₂ and R₁ are --H and R₃, and R₅ are --Me,
 - (e) R₅, R₄, R₂ and R₁ are --H and R₃, and R₆ are --Me,
 - (f) R₆, R₅, R₂ and R₁ are --H and R₃, and R₄ are --Me,
 - (g) R₆, R₄, R₃ and R₁ are --H and R₂, and R₅ are --Me,
 - (h) R₅, R₄, R₃ and R₁ are --H and R₂, and R₆ are --Me,
 - (i) R₆, R₅, R₄ and R₁ are --H and R₂, and R₃ are --Me,
 - (j) R₂, R₄, R₃ and R₁ are --H and R₅, and R₆ are --Me,
 - (k) R₆, R₄, R₃ and R₂ are --H and R₁, and R₅ are --Me,
 - (l) R₅, R₄, R₃ and R₂ are --H and R₁, and R₆ are --Me,
 - (m) R₆, R₅, R₃ and R₂ are --H and R₁, and R₄ are --Me, or
 - (n) R₆, R₅, R₄ and R₃ are --H and R₁, and R₂ are --Me, and
L₁, L₂, L₃ and L₄ are as defined therein.

48. (new) The compound of claim 47 wherein (a)-(n) are as defined therein, L₁ and L₂ are --OH, L₃ is D-desosamine and L₄ is L-cladinose.

49. (new) The compound of claim 29 wherein

(a) R₅, R₄, R₃, R₂ and R₁ are --H and R₆ is --Me,

(b) R₆, R₄, R₃, R₂ and R₁ are --H and R₅ is --Me,

(c) R₆, R₅, R₃, R₂ and R₁ are --H and R₄ is --Me,

(d) R₆, R₅, R₄, R₂ and R₁ are --H and R₃ is --Me,

(e) R₆, R₅, R₄, R₃ and R₁ are --H and R₂ is --Me, or

(f) R₆, R₅, R₄, R₃ and R₂ are --H and R₁ is --Me, and

L₁, L₂, L₃ and L₄ are as defined therein.

50. (new) The compound of claim 49 wherein (a)-(f) are as defined therein, L₁ and L₂ are --OH, L₃ is D-desosamine and L₄ is L-cladinose.

51. (new) The compound of claim 29 wherein R₁, R₂, R₃, R₄, R₅ and R₆ are --H and L₁, L₂, L₃ and L₄ are as defined therein.

52. (new) The compound of claim 51 wherein R₁, R₂, R₃, R₄, R₅ and R₆ are as defined therein, L₁ and L₂ are --OH, L₃ is D-desosamine and L₄ is L-cladinose.

53. (new) The compound of claim 29 elected from the group consisting of 6,10-didesmethyl-6-ethylerythromycin A; 10,12-didesmethyl-12-deoxy-12-ethylerythromycin A; 10,12-didesmethyl-12-deoxy-10-hydroxyerythromycin A; 6,10,12-tridesmethyl-6,12-diethylerythromycin A, and 6,10,12-tridesmethyl-6-deoxy-6,12-diethylerythromycin A.

54. (new) The compound of claim 29 elected from the group consisting of 10-desmethylethylerythronolide B, 10-desmethyl-6-deoxyerythronolide B, 12-desmethylethylerythronolide B, 12-desmethyl-6-deoxyerythronolide B, 12-desmethyl-12-ethylerythronolide B, 6-desmethyl-6-deoxy-6-ethylerythronolide B, 10-desmethylethylerythromycin A, 10-desmethyl-12-deoxyerythromycin A, 10-desmethyl-6,12-dideoxyerythromycin A, 12-desmethylethylerythromycin A, 12-desmethyl-12-deoxyerythromycin A, 12-desmethyl-6,12-dideoxyerythromycin A, 6-

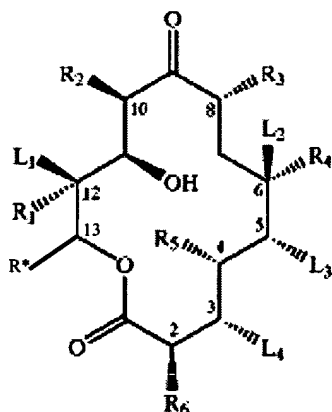
desmethyl-6-ethylerythromycin A, 12-desmethyl-12-ethylerythromycin A, 12-desmethyl-12-deoxy-12-ethylerythromycin A, 10-desmethyl-10-hydroxyerythromycin A, 12-desmethyl-12-epihydroxyerythromycin A, 10,12-didesmethylethylerythromycin A, 10,12-didesmethyl-12-deoxyerythromycin A, and 10,12-didesmethyl-6,12-dideoxyerythromycin A.

55. (new) The compound of claim 29 elected from the group consisting of 10-desmethylethylerythronolide B, 10-desmethyl-6-deoxyerythronolide B, 12-desmethylethylerythronolide B, 12-desmethyl-6-deoxyerythronolide B, 10-desmethylethylerythromycin A, 10-desmethyl-12-deoxyerythromycin A, 10-desmethyl-6,12-dideoxyerythromycin A, 12-desmethylethylerythromycin A, 12-desmethyl-12-deoxyerythromycin A, 12-desmethyl-6,12-dideoxyerythromycin A, 10,12-didesmethylethylerythromycin A, 10,12-didesmethyl-12-deoxyerythromycin A, and 10,12-dideoxyerythromycin A.

56. (new) A compound selected from the group consisting of 10-desmethylethylerythromycin A, 10-desmethyl-12-deoxyerythromycin A, and 12-desmethyl-12-deoxyerythromycin A.

57. (new) The compound 6-desmethyl-6-ethylerythromycin A.

58. (new) A compound of the formula:



wherein R₁, R₂, R₃, R₄, R₅, and R₆ are independently selected from Q wherein Q is selected from the group consisting of (a) --H, (b) --Me, (c) --Et, and (d) --OH;

wherein R* is a straight chain, branched or cyclic, saturated or unsaturated substituted or unsubstituted hydrocarbyl of 1-15C;

L₁ and L₂ are independently --H or --OH;

L₃ is D-desosamine or --OH; and

L₄ is L-mycarose, L-cladinosose or --OH

with the proviso that when R₁ -R₅ are --Me, R₆ is other than --H or --Me.

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